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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/606,506	06/26/2003	Kaare J. Anderson	21220/04141	5229

24024 7590 11/17/2004

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EXAMINER	
STONE, JENNIFER A	

ART UNIT	PAPER NUMBER
2636	

DATE MAILED: 11/17/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/606,506	KAARE J. ANDERSON ET AL.	
	Examiner	Art Unit	
	Jennifer A Stone	2636	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-58 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) 50-58 is/are allowed.

6)☒ Claim(s) 1-12,15-27 and 30-49 is/are rejected.

7)☒ Claim(s) 13,14,28 and 29 is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on October 30, 2003 is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date June 26, 2003.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Drawings

1. The drawings are objected to under 37 CFR 1.83(a) because they fail to show text labeling for Figure 1, items 66a, 60a,b; 62a,b; 64a,b; 22, 24, 66b, 12, 14, and 16 as described in the specification. Any structural detail that is essential for a proper understanding of the disclosed invention should be shown in the drawing. MPEP § 608.02(d). Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement-drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

3. Claim 46 recites the limitation "bus controller" in lines 6 and 7. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1, 4, 10, and 15 are rejected under 35 U.S.C. 102(e) as being anticipated by Ohmi et al. (U.S. 6,622,543).

For claim 1, Ohmi discloses a fire detector unit for detecting fire in a region, the fire unit comprising: a chemical sensor for monitoring the region for a combustion chemical (col 11, lns 5-11; Fig. 1, item 2) and including a first measurable parameter which changes in values proportional to concentration levels of the monitored combustion chemical (col 4, lns 7-11), the first measurable parameter being ambient temperature dependent (col 6, lns 52-54; Fig. 1, items 3a and 5); a temperature sensor disposed in proximity to the chemical sensor and including a second measurable parameter which changes in value proportional to the ambient temperature of the chemical sensor (col 6, lns 54-62; Fig. 1, items 3b and 6); a processor circuit coupled to

the chemical sensor and temperature sensor for reading the first and second measurable parameters thereof (Fig. 1, item 3e; col 6, lns 58-60), the processor circuit operative to process the first and second parameter reading to generate a temperature compensated concentration level of the monitored combustion chemical (Fig. 1, item 3f; col 7, lns 3-8), and to generate an alarm based on the generated temperature compensated concentration level. Figures 5 and 11 provide examples of temperature compensation detectors, where Figure 5 includes a variable resistor that changes based on the two temperatures (Fig. 5, items 5, 6). In addition, according to the prior art, it is well known that the principle of detecting temperature variations to detect a gas concentration is based on the temperature compensation circuit (Fig. 11; col 1, lns 31-47).

For claim 4, the processor circuit is operative to generate the temperature compensated concentration level based on a function of the first parameter reading (Figures 6-8), and a first parameter measurement corresponding to a predetermined combustion chemical concentration and a temperature factor value (col 10, lns 40-45), both the first parameter measurement and temperature factor value determined from the second parameter reading. The sensor output temperature is determined by the difference of the first and second temperature readings.

For claim 10, Ohmi discloses a processor circuit operative to generate an alarm (col 7, lns 3-8) based on a comparison of a time rate of the generated temperature compensated concentration level and a ramp threshold (Fig. 9, time vs. temperature curve).

For claim 15, the combustion chemical sensor comprises a sensor selected from the group consisting of a hydrogen gas sensor and a carbon monoxide gas sensor (col 11, lns 5-12).

6. Claims 16, 19, and 25 are rejected under 35 U.S.C. 102(e) as being anticipated by Ohmi et al. (U.S. 6,622,543).

For claim 16, the claim is interpreted and rejected for the same reasons as stated in the rejection of claim 1 as stated above.

For claim 19, the claim is interpreted and rejected for the same reasons as stated in the rejection of claim 4 as stated above.

For claim 25, the claim is interpreted and rejected for the same reasons as stated in the rejection of claim 10 as stated above.

7. Claims 30, 33, 34, and 35 are rejected under 35 U.S.C. 102(e) as being anticipated by Ohmi et al. (U.S. 6,622,543).

For claim 30, Ohmi discloses a method of calibrating a fire detector unit comprising a sensor for monitoring a region for a combustion chemical, the method comprising the steps of: measuring a parameter of the sensor at a plurality of predetermined chemical concentration levels and a plurality of predetermined first temperatures, the sensor parameter changing in value proportional to concentration levels of the monitored combustion chemical and ambient temperature (col 10, lns 16-20, 24-27, and 40-45); creating measured parameter vs. temperature curve data for each of the plurality of predetermined chemical concentration levels based on the parameter measurements (Figures 6-8); deriving temperature factors at a plurality of

second temperatures based on the created measured parameter vs. temperature curve data (Figs. 6-8 – sensor output temperature); and creating temperature factor vs. temperature curve data based on the derived temperature factors (col 10, lns 49-67; Fig. 9).

For claim 33, the calibration method includes the sensor parameter being measured comprises resistance (Fig. 5 – variable resistor; Fig. 11)

For claim 34, Ohmi discloses the temperature factors are derived at the plurality of second temperatures based on a function of sensor parameter measurements at first and second predetermined chemical concentration levels and corresponding second temperatures (Fig. 6-8).

For claim 35, Ohmi discloses creating a second temperature factor vs. temperature curve data based on the derived temperature factors; wherein the temperature factors of the second temperature factor vs. temperature curve data are derived at the plurality of the second temperatures based on a function of sensor parameter measurements at second (Fig. 6 – H2 concentration %) and third predetermined chemical concentration levels (Fig. 8 – O2 concentration %) and corresponding second temperatures. The sensor output temperature in Figures 6-8 are based on the difference of two temperatures.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

9. Claims 9 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ohmi, as applied to independent claims 1 and 16, respectively.

Ohmi discloses a processor circuit operative to generate an alarm (col 7, lns 3-8) based on a comparison of the generated temperature compensated concentration level but, an absolute threshold is not disclosed. However, it would have been obvious for Ohmi to specify some type of threshold value to generate an alarm.

10. Claims 2, 3, and 5-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ohmi and further in view of Thuillard et al. (US. 6,788,197).

For claim 2, Ohmi discloses temperature compensated, gas concentration levels of the monitored combustion chemical, and a processor, but does not disclose look-up tables and memory. However, Thuillard discloses a memory and look up tables of concentration and temperature data (col 4, lns 61-67; col 5,lns 1-3; Table 1). It would have been obvious for Ohmi to include a memory, coupled to the processor circuit and operative to process both temperature readings in order to generate the temperature compensated concentration level of the monitored combustion chemical for the purpose of referring to the measurement data in the future.

For claim 3, Ohmi discloses temperature compensated gas concentration levels based on a function of the first parameter reading, and a first parameter measurement corresponding to a predetermined combustion chemical concentration and a

temperature factor value, both of the first parameter measurement and temperature factor value determined from the second parameter reading, but does not disclose look-up tables. Thuillard, however, discloses look-up tables (Table 1, col 4). It would have been obvious for Ohmi to include look-up tables for the purpose of referring to the measurement data in the future.

For claim 5, Ohmi discloses curves of first parameter measurements vs. temperature corresponding to the predetermined combustion chemical concentration; and wherein the processor circuit is coupled to the combustion; however, Ohmi does not disclose a memory. Thuillard, on the other hand, discloses a memory for accessing a first parameter measurement corresponding to the predetermined chemical concentration from stored data based on the second parameter reading (col 4, lns 59-67; col 5, lns 1-3; Table 1). It would have been obvious to one of ordinary skill in the art, at the time the invention was made, for Ohmi to include a storage unit with the processor in order to refer to the measurement data in the future.

For claim 6, Ohmi discloses curves representative of temperature factor vs. temperature and a processor, but does not disclose a memory for accessing and storing the data. However, Thuillard, discloses a memory for accessing a temperature value from stored data based on a second parameter reading (col 4, lns 59-67; col 5, lns 1-3; Table 1). It would have been obvious to include a storage unit with the processor in order to refer to the measurement data in the future.

For claim 7, Ohmi discloses data representative of the curve of the predetermined combustion chemical concentration and data representative of the curve

of the temperature factor, but does not disclose a memory or look-up tables. However, Thulliard discloses a memory and look up tables of concentration and temperature data (col 4, lns 61-67; col 5,lns 1-3; Table 1). It would have been obvious for Ohmi to include a storage unit and look-up tables to refer to the measurement data in the future.

For claim 8, Ohmi discloses a temperature factor vs. temperature curve (Fig. 6-8) and data representative of a second temperature factor vs. temperature curve (Fig. 6-8); and wherein the processor circuit generates a temperature compensated concentration level (col 10, lns 40-45). However, Ohmi does not disclose a memory for storage and access. Thuillard, on the other hand, does disclose a memory and accessible data. It would have been obvious for Ohmi to include a memory for storage for the data curves and access to the curves to refer to the measurement data in the future.

11. Claims 11 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ohmi and further in view of Consadori et al. (U.S. 5,526,280).

For claim 11, Ohmi does not disclose a sliding window in time processor and memory; however, Consadori discloses a processor circuit operative to read time samples of the first measurable parameter and to generate a temperature compensated concentration level for each time sample based on the time sample readings; and including a memory, the processor operative to store in the memory a sliding window in time of a predetermined number of most recent generated temperature compensated concentration levels (col 5, lns 13-23; col 10, lns 31-37). It would have been obvious for Ohmi to include a moving window memory, such as EEPROM, so that data can continue to process while storing the most current data.

For claim 12, Ohmi does not disclose a sliding window in time processor and memory; however, Consadori discloses a processor circuit operative to derive a time rate of the generated temperature compensated concentration levels as a difference of a current generated temperature compensated concentration level and a minimum generated temperature compensated concentration level from the stored predetermined number of generated temperature compensated concentration levels, and to set an alarm based on a comparison of the time rate of the generated temperature compensated concentration levels and a ramp threshold (col 10, lns 28-42). It would have been obvious for Ohmi to include storage of a time rate of the generated temperature compensated concentration levels and a ramp threshold so that data can continue to process while storing the most current data.

12. Claims 17, 18, and 20-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ohmi and further in view of Thuillard et al. (US. 6,788,197).

For claim 17, the claim is interpreted and rejected for the same reasons as stated in the rejection of claim 2 as stated above.

For claim 18, the claim is interpreted and rejected for the same reasons as stated in the rejection of claim 3 as stated above.

For claim 20, the claim is interpreted and rejected for the same reasons as stated in the rejection of claim 5 as stated above.

For claim 21, the claim is interpreted and rejected for the same reasons as stated in the rejection of claim 6 as stated above.

For claim 22, the claim is interpreted and rejected for the same reasons as stated in the rejection of claim 7 as stated above.

For claim 23, the claim is interpreted and rejected for the same reasons as stated in the rejection of claim 8 as stated above.

13. Claims 26 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ohmi and further in view of Consadori et al. (U.S. 5,526,280).

For claim 26, the claim is interpreted and rejected for the same reasons as stated in the rejection of claim 11 as stated above.

For claim 27, the claim is interpreted and rejected for the same reasons as stated in the rejection of claim 12 as stated above.

14. Claim 31 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ohmi, as applied to claim 30, and further in view of Consadori et al. (U.S. 5,526,280).

Ohmi does not disclose burning in or cleaning the sensor. However, Consadori discloses burning in the sensor under operating conditions for a predetermined period (col 12, lns 25-27). It would have been obvious for Ohmi to clean the sensor so that false alarms are not triggered due to dirt build up on the sensor.

15. Claims 32, and 36-41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ohmi as applied to claim 30 above, and further in view of Thuillard.

For claim 32, Ohmi does not disclose disposing the fire detector unit in a test chamber for performing the step of measuring the sensor parameter. Thuillard discloses disposing the fire detector unit in a test chamber for performing the step of

measuring the sensor parameter.(col 4, lns 53-59). It would have been obvious to place the detector in a test chamber so that outside elements do not affect the test results.

For claim 36, Ohmi discloses measuring parameter data vs. temperature curve data; however, Ohmi does not disclose storing the data in the fire detector unit. Thuillard, on the other hand, does disclose storing data in a fire detector unit (col 4, lns 53-56 and 64-67; Fig. 1, items 3 and 6). It would have been obvious for Ohmi to include storing the data in the fire detector unit to refer to the measurement data in the future.

For claim 37, Ohmi discloses measuring parameter data vs. temperature curve data; however, Ohmi does not disclose storing the data in the form of look-up tables. Thuillard, on the other hand, does disclose storing data in the form of look-up tables (col 4, lns 53-56 and 64-67; Fig. 1, items 3 and 6). It would have been obvious for Ohmi to include storing the data in the form of look-up tables to refer to the measurement data in the future.

For claim 38, Ohmi discloses measuring temperature factor vs. temperature curve data; however, Ohmi does not disclose storing the data in the fire detector unit. Thuillard, on the other hand, does disclose storing data in a fire detector unit (col 4, lns 53-56 and 64-67; Fig. 1, items 3 and 6). It would have been obvious for Ohmi to include storing the data in the fire detector unit to refer to the measurement data in the future.

For claim 39, Ohmi discloses measuring temperature factor vs. temperature curve data; however, Ohmi does not disclose storing the data in the form of look-up tables. Thuillard, on the other hand, does disclose storing data in the form of look-up tables (col 4, lns 53-56 and 64-67; Fig. 1, items 3 and 6). It would have been obvious

for Ohmi to include storing the data in the form of look-up tables to refer to the measurement data in the future.

For claim 40, the claim is interpreted and rejected for the same reasons as stated in the rejection of claims 2 and 8 as stated above.

For claim 41, the claim is interpreted and rejected for the same reasons as stated in the rejection of claims 36 and 40 as stated above.

16. Claims 42-49 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ohmi and further in view of Thuillard et al. (US. 6,788,197).

For claim 42, the claim is interpreted and rejected for the same reasons as stated in the rejection of claims 1 and 16 as stated above. In addition, Ohmi does not disclose a smoke detector; however, Thuillard discloses a smoke detector, a temperature detector, and gas detectors for monitoring a region for smoke and generating a smoke alarm signal upon the detection of smoke in the region (col 3, lns 2-7 and 60-67). It would have been obvious for Ohmi to include a smoke alarm detector, signal, and reading to generate temperature compensated concentration levels to diversify the detector and to provide a safe environment.

For claim 43, Ohmi does not disclose structure of the fire detector. Thuillard, on the other hand, discloses a hollow housing having a top surface (col 2, lns 66 and 67; col 3, lns 1-7; Fig. 1, item 3); wherein the smoke detector is disposed at a first area of the top surface (col 3, lns 34-37 and 41-46; Fig. 1, item 7); wherein the plurality of chemical sensors and the temperature sensor are disposed at a second area of the top

surface (col 3, lns 60-63; col 4, lns 59-62; Fig. 1, items 12 and 13). It would have been obvious for Ohmi to disclose the structure of the detector for proper mounting.

For claim 44, Ohmi does not disclose structure of the fire detector. Thuillard, on the other hand, discloses a screened, protective shield disposed over the plurality of combustion chemical sensors and the temperature sensors and mounted to the top surface (col 2, lns 66 and 67; col 3, lns 1-4; Fig. 1, items 3 and 4). Even though Thuillard discloses only one screen, the screen protects all components and, therefore, a second screen is not needed. It would have been obvious for Ohmi to include either one or more screens on the detector in order to filter out particulate matter, such as lint, in order to preserve the sensors.

For claim 45, Ohmi discloses built in test circuitry wherein the processor circuit includes: test circuitry coupled to each of the plurality of combustion chemical sensors for detecting a fault condition therein (col 10, lns 40-45; col 11, lns 6-12). However, Ohmi discloses neither first and second fault signals for indicative of a fault condition nor means for inhibiting the generation of the fire alarm based on the first and second signals. However, Thuillard discloses these features (col 4, lns 53-67; col 5, lns 1-3 and 30-33). In addition, it is obvious that during the diagnostic or test stage, an alarm is inhibited if a sensor is faulty. It would have been obvious for Ohmi to include signals indicative of a fault condition so that the sensors are maintained to function properly.

For claim 46, Ohmi discloses a communication bus (lines and arrows between 3a-3f in Fig 1); a communication controller and transmitter (Fig. 1, item 3e; col 6, lns 59-60) coupled between the processor circuit and the communication bus; and wherein the

processor circuit includes means for converting the fire alarm into alarm messages (col 6, lns 60-62; col 7, lns 5-8); and means for controlling the bus controller and transmitter for transmitting the alarm messages of the communication bus (col 9, lns 59-65). Ohmi does not disclose transmitting fault signals and messages. However, Thuillard discloses transmitting fault signals and messages (col 2, lns 24-31; col 5, lns 30-33). It would have been obvious for Ohmi to transmit signals indicative of a fault condition so that the sensors are maintained to function properly.

For claim 47, Ohmi does not disclose a programmed microcontroller; however, Thuillard discloses this feature (col 4, lns 53-57). It would have been obvious for Ohmi to disclose a programmed microcontroller for automatically looking up and comparing real-time data with stored data.

For claim 48, Ohmi discloses a means for generating a sensor alarm signal for each chemical sensor of said plurality based on the generated temperature compensated concentration level corresponding to the chemical sensor (col 7, lns 5-8). However, Ohmi does not disclose smoke alarm signals and sensors. Thuillard discloses smoke alarm signals and sensors (col 3, lns 43-46). It would have been obvious to generate the alarm signals concurrently so that safety measures are considered for each alarm signal.

For claim 49, the claim is interpreted and rejected for the same reasons as stated in the rejection of claim 15 as stated above.

Allowable Subject Matter

17. Claims 13, 14, 28, and 29 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

18. Claims 50-58 are allowed.

Conclusion

19. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

Brooks, Jr. (U.S. 6,181,250) discloses a gas and concentration detector.

Colvin (U.S. 6,218,951) discloses a gas and concentration detector alarm.

Sakai et al. (U.S. 5,528,225) discloses look-up tables with gas concentration curves.

Bossart et al. (U.S. 4,533,520) discloses gas, resistance, and temperature curves for a gas detector.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jennifer A. Stone whose telephone number is (571) 272.2976. The examiner can normally be reached 8:00-4:30, M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Jeffery Hofsass can be reached at (571) 272.2981. The fax phone number for the organization where this application or proceeding is assigned is (703) 872.9306 for regular and after final communications.

Any inquiry of a general nature of relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (571) 272.2600.

Jennifer Stone
November 5, 2004

JEFFERY HOFSASS
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600